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EXAMINER
LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
1764	11

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/415,673	SCHON, HARTMUT	
	Examiner	Art Unit	
	Jennifer A. Leung	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 November 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *27 November 2002* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. Applicant's Amendment filed on November 27, 2002 has been received and carefully considered. The changes submitted to the Specification and Drawings are acceptable. Claims 1-16 remain active.

Claim Objections

2. Claims 2-5 and 9-12 are objected to because of the following informalities:

In claims 2-4 and 10-12, "collecting" should be changed to -- collection -- for consistency in claim terminology, as set forth in claim 1 (line 8) and claim 9 (line 8).

In claim 5, "the reactor" should be changed to -- the chamber -- for consistency with the disclosure. (The Examiner has interpreted "the reactor" as a typographical error).

In claim 9, -- a -- should be inserted before "collection" (line 8).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1, the recitation of "A fluidized-bed reactor..." in the preamble is incomplete and non-functional, since the claims lack the recitation of an element for performing

the specific function of a reactor and the scope of the claims is generally directed towards a heat exchange apparatus. It is unclear as to whether the applicants are intending to claim both a fluidized bed reactor and a heat exchanger.

Furthermore, it is unclear as to the relationship of "an exothermic reaction" (line 4) to the reaction of "oxychlorination" set forth in the preamble. Furthermore, it is unclear as to the structural limitation the applicants are attempting to recite by, "the tube packets come into contact with the water distributed via the ring pipe and the steam removed via the ring pipe" (lines 6-7), since no structural relationship is established between "the tube packets" and "the ring pipe".

With respect to claim 8, "the pipes" (line 2) lacks proper positive antecedent basis. Furthermore, it is unclear as to the structural relationship of "holes" to the other elements of the apparatus.

With respect to claim 9, the recitation of "A process for the oxychlorination of ethylene..." in the preamble is incomplete and non-functional since the claims lack the recitation of steps to enable the specific process of oxychlorination, and the scope of the claims is generally directed towards a process of heat exchange for an exothermic reaction in a fluidized bed reactor.

Furthermore, it is unclear as to the relationship of "an exothermic reaction" (line 5) to the process of "oxychlorination" set forth in the preamble. Also, it is unclear as to the process limitation the applicants are attempting to recite by, "causing the tube packets to come into contact with the water distributed via a ring pipe and steam via the ring pipe" (lines 7-8), since it is unclear as to the structural relationship of "the tube packets" to "a/the ring pipe". Also, "said

reactor" (line 1) lacks proper positive antecedent basis. Also, "a wall" (line 9) lacks structural relation to the other structural elements of the process.

With respect to claims 10-12, "the reactor wall" lacks proper positive antecedent basis.

With respect to claim 16, "the pipelines" lacks proper positive antecedent basis. Furthermore, it is unclear as the structural relationship of "holes" to the other structural elements of the process. Furthermore, it is unclear as to the structural limitation the applicants are attempting to recite by, "said holes being in the form of throttle holes" (line 2).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2 and 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Laquement et al. (U.S. 4,811,696).

With respect to claim 1, Laquement et al. (FIG. 2) disclose a fluidized bed reactor comprising: a heat exchanger **60**, including a plurality of tube packets **66** (column 4, lines 44-51), in a fluidized bed **100** for releasing heat to a heat-transfer medium in the tube packets **66**; and a ring pipe (manifolds **62**, **64**), wherein the tube packets **66** come into contact with the heat transfer medium distributed via the ring pipe **62** and the heat transfer medium removed via the ring pipe **64**, wherein the ring pipe is mounted as a distribution or collection chamber on a wall of the reactor **10** (column 4, lines 20-43).

With respect to claim 2, Laquement et al. (FIG. 2) further disclose the distribution or collecting chamber **62**, **64** is mounted internally on the reactor wall.

With respect to claim 7, Laquement et al. (FIG. 2) further disclose the distribution or collecting chamber **62**, **64** is essentially circular in cross-section.

With respect to claim 8, Laquement et al. (FIG. 2) further disclose holes for connecting the pipes to said holes (i.e. hole at interface connecting conduit **78** to manifold **64**, or hole at interface connecting conduit **76** to manifold **62**, or holes at interfaces connecting tubes **66** to manifolds **64**, **66**). The holes, comprising substantially the structural limitations as instantly recited, would inherently define a desired pressure loss and ensure uniform flow over the tube packets.

Instant claims 1-2 and 7-8 structurally read on the apparatus of Laquement et al.

5. Claims 1-2 and 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Frank (U.S. 3,833,051).

With respect to claim 1, Frank discloses a fluidized bed reactor comprising: a heat exchanger, including a plurality of tube packets **8**, in a fluidized bed for releasing heat to a heat transfer fluid in the tube packets **8** (column 1, lines 45-57); and a ring pipe, wherein the tube packets **8** come into contact with the heat transfer fluid distributed via the ring pipe **2** (column 1, lines 58-61) and the heat transfer fluid removed via the ring pipe **3** (column 1, line 62 to column 2, line 5), wherein the ring pipe is mounted as a distribution **2** or collection **3** chamber on a wall of the reactor **1** (column 3, lines 7-11).

With respect to claim 2, Frank discloses a distribution 2 or collection 3 chamber mounted internally on the reactor wall (FIG. 2; column 2, lines 45-51; column 3, lines 7-11).

With respect to claim 7, Frank discloses by illustration (FIG. 1, 2) an essentially circular cross-section for the distribution and collecting chambers **2**, **3**.

With respect to claim 8, Frank discloses holes for connecting the pipes to said holes (i.e. holes at interface connecting tube packets **8** to supply and discharge headers **2**, **3**; FIG. 1, 2). The holes, comprising substantially the structural limitations as instantly recited, would inherently define a desired pressure loss and ensure uniform flow over the tube packets.

Instant claims 1-2 and 7-8 structurally read on the apparatus of Frank.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laquement et al. (U.S. 4,811,696), as applied to claim 1 above, and further in view of Nickerson et al. (U.S. 4,117,885).

With respect to claim 3, Laquement et al. (FIG. 2) are silent as to whether the distribution **62** or collecting chamber **64** may be mounted externally on wall **10**. However, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to mount the chambers externally on the wall of the apparatus of Laquement et al., on the basis of suitability for the intended use and absent showing any unexpected results, since shifting

location of parts was held to have been obvious. *In re Japikse,* 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950). Furthermore, Nickerson et al. teach a distribution (inlet inventory chamber **23**) or collecting chamber (outlet inventory chamber) mounted externally on the reactor wall **14** (Fig. 2; column 1, lines 13-19; column 3, lines 29-45), wherein according the such arrangement, the volume of [heat exchange fluid] not experiencing heat exchange with a secondary fluid is kept to a minimum while the [heat exchange fluid] is routed into and out of the vessel (column 5, lines 10-26).

With respect to claim 6, Nickerson et al. further teach that the distribution or collecting chamber (as discussed above) comprises an essentially semi-circular cross-section (FIG. 2). In any event, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select a semi-circular cross-section, or any other cross-sectional shape for that matter, for the chamber in the modified apparatus of Laquement et al. since it has been held that changes in shape involves only ordinary skill in the art. *In re Dailey* 149 USPQ 47, 50 (CCPA 1966); *Glue Co. v Upton* 97 US 3, 24 (USSC 1878).

7. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (U.S. 3,833,051), as applied to claim 1 above, and further in view of Nickerson et al. (U.S. 4,117,885).

With respect to claims 3 and 6, Frank (FIG. 1, 2) is silent as to whether the distribution **2** or collecting **3** chamber may be mounted externally on wall **1**, and whether the chamber may comprise an essentially semicircular shape. However, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to mount the chambers externally on the reactor wall and select a semicircular chamber for the apparatus of

Frank, on the basis of suitability for the intended use and absent showing any unexpected results, since shifting location of parts was held to have been obvious. *In re Japikse,* 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950) and changes in shape involves only ordinary skill in the art. *In re Dailey* 149 USPQ 47, 50 (CCPA 1966); *Glue Co. v Upton* 97 US 3, 24 (USSC 1878). Furthermore, the same comments with respect to Nickerson et al. apply.

8. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laquement et al. (U.S. 4,811,696), as applied to claim 1 above, and further in view of Pettibone (U.S. 1,848,801).

With respect to claims 4, Laquement et al. (FIG. 2) are silent as to whether the distribution **62** or collecting **64** chamber may be mounted both internally and externally on wall **10**. Pettibone teaches a heat exchanger comprising distribution or collecting chambers (headers **13**, **14**) for feeding heat exchange fluid to a plurality of tube packets (tubes **12**), wherein the chambers are mounted both internally and externally on a wall (FIG. 1, 2). It would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to mount the chamber both internally and externally on the reactor wall in the apparatus of Laquement et al., on the basis of suitability for the intended use and absent showing any unexpected results, since mounting the chambers as such "provide[s] easier assembly of the [tube packets]", as taught by Pettibone (column 2, lines 88-93).

With respect to claim 5, Laquement et al. (FIG. 2) are silent as to whether the chamber **62, 64** may comprise a substantially rectangular cross-section. In any event, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select a substantially rectangular cross-section for the chamber in the apparatus of Laquement et

al., on the basis of suitability for the intended use and absent showing any unexpected results, since changes in shape involves only ordinary skill in the art. *In re Dailey* 149 USPQ 47, 50 (CCPA 1966); *Glue Co. v Upton* 97 US 3, 24 (USSC 1878). To further evidence conventionality of providing a substantially rectangular chamber, Pettibone (FIG. 1, 2) teaches a supply or discharge header **14** (substantially a distribution or collecting chamber) of substantially rectangular cross-section (FIG. 2). Note that although the claim has been amended to read, "the reactor is substantially rectangular," the Examiner has interpreted "the reactor" to be a typographical error, and that the applicants intended the claim to read, "the chamber is substantially rectangular," as supported by the disclosure (page 5, lines 1-3; FIG. 3, 5).

9. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (U.S. 3,833,051), as applied to claim 1 above, and further in view of Pettibone (U.S. 1,848,801).

With respect to claim 4, Frank (FIG. 1, 2) is silent as to whether the distribution **2** or collecting **3** chamber may be mounted both internally and externally on the reactor wall **1**. The same comments with respect to Pettibone apply.

With respect to claim 5, Frank (FIG. 1, 2) is silent as to whether chamber **2**, **3** may comprise a substantially rectangular cross-section. In any event, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select a substantially rectangular cross-section for the chamber in the apparatus of Frank, on the basis of suitability for the intended use and absent showing any unexpected results, since it has been held that changes in shape involves only ordinary skill in the art. *In re Dailey* 149 USPQ 47, 50 (CCPA 1966); *Glue Co. v Upton* 97 US 3, 24 (USSC 1878). Furthermore, the same comments with respect to Pettibone apply. Note that although the claim has been amended to read, "the

reactor is substantially rectangular," the Examiner has interpreted "the reactor" to be a typographical error, and the applicants intended the claim to read, "the chamber is substantially rectangular," as supported by the disclosure (page 5, lines 1-3; FIG. 3, 5).

10. Claims 9-10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laquement et al. (U.S. 4,811,696) in view of Vancamp et al. (U.S. 3,679,373).

With respect to claim 9, Laquement et al. (FIG. 2) disclose a fluidized bed reactor comprising: a heat exchanger **60**, including a plurality of tube packets **66** (column 4, lines 44-51), in a fluidized bed **100** for releasing heat to a heat-transfer medium in the tube packets **66**; and a ring pipe (manifolds **62**, **64**), wherein tube packets **66** come into contact with the heat transfer medium, such as water, distributed via ring pipe **62** and the heat transfer medium, such as steam, removed via ring pipe **64**, wherein the ring pipe is mounted as a distribution or collection chamber on a wall of the reactor **10** (column 4, lines 20-43; column 2, lines 33-47). Although Lacquement et al. is silent as to whether the apparatus may be used for conducting the specific process of oxychlorination, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to use the apparatus of Laquement et al. for such process, since it is well known in the art that oxychlorination of ethylene may be conducted in fluidized bed reactors, wherein the heat of reaction is transferred to a heat exchange means located within the reactor. To evidence conventionality, Vancamp et al. teaches a process for the oxychlorination of ethylene, wherein the process is conducted within a fluidized bed reactor having a heat exchanger comprising a plurality of serpentine conduits **8** (substantially equivalent in function to the heat exchanger comprising tube packets disclosed above) which pass a heat transfer medium (substantially equivalent in function to the heat transfer medium as

disclosed above) for cooling the reaction (FIG. 1, 2; column 3, lines 5-16; column 1, lines 14-21; 25-42). In any event, apparatus limitations, unless they affect the process in a manipulative sense, may have little weight in process claims. *In re Tarczy-Hornoch* 158 USPQ 141, 150 (CCPA 1968); *In re Edwards* 128 USPQ 387 (CCPA 1961); *Stalego v. Heymes* 120 USPQ 473, 478 (CCPA 1959); *Ex parte Hart* 117 USPQ 193 (PO BdPat App 1957); *In re Freeman* 44 USPQ 116 (CCPA 1940); *In re Sweeney* 72 USPQ 501 (CCPA 1947).

With respect to claim 10, Laquement et al. (FIG. 2) further disclose the distribution or collecting chamber **62**, **64** is mounted internally on the reactor wall.

With respect to claim 16, Laquement et al. (FIG. 2) further disclose holes for connecting the pipes (i.e. hole at interface connecting conduit **78** to manifold **64**, or hole at interface connecting conduit **76** to manifold **62**, or holes at interfaces connecting tubes **66** to manifolds **64**, **66**). The holes, comprising substantially the structural limitations as recited, would inherently define a desired pressure loss and ensure uniform flow over the tube packets.

11. Claims 9-10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (U.S. 3,833,051) in view of Vancamp et al. (U.S. 3,679,373).

With respect to claim 9, Frank discloses a fluidized bed reactor comprising: a heat exchanger, including a plurality of tube packets **8**, in a fluidized bed for releasing heat to a heat transfer fluid in the tube packets **8** (column 1, lines 45-57); and a ring pipe, wherein the tube packets **8** come into contact with the heat transfer fluid distributed via the ring pipe **2** (column 1, lines 58-61) and the heat transfer fluid removed via the ring pipe **3** (column 1, line 62 to column 2, line 5), wherein the ring pipe is mounted as a distribution **2** or collection **3** chamber on a wall of the reactor **1** (column 3, lines 7-11). Frank does not specify whether the heat transfer fluid

may comprise water/steam; however, the Examiner takes Official Notice that water and steam are conventionally known heat transfer fluids in the art of heat exchange. Although Frank is silent as to whether the apparatus may be used for conducting the specific process of oxychlorination, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to use the apparatus of Frank for such process, on the basis of suitability for the intended use and absent showing any unexpected results, since it is well known in the art that oxychlorination of ethylene may be conducted in fluidized bed reactors, wherein the heat of reaction is transferred to a heat exchange means located within the reactor, as evidenced by Vancamp. The same comments with respect to Vancamp as stated above apply. In any event, apparatus limitations, unless they affect the process in a manipulative sense, may have little weight in process claims. *In re Tarczy-Hornoch* 158 USPQ 141, 150 (CCPA 1968); *In re Edwards* 128 USPQ 387 (CCPA 1961); *Stalego v. Heymes* 120 USPQ 473, 478 (CCPA 1959); *Ex parte Hart* 117 USPQ 193 (PO BdPat App 1957); *In re Freeman* 44 USPQ 116 (CCPA 1940); *In re Sweeney* 72 USPQ 501 (CCPA 1947).

With respect to claim 10, Frank further discloses a distribution **2** or collection **3** chamber mounted internally on the reactor wall (FIG. 2; column 2, lines 45-51; column 3, lines 7-11).

With respect to claim 16, Frank further discloses holes for connecting the pipes (i.e. holes at interface connecting tube packets **8** to supply and discharge headers **2**, **3**; FIG. 1, 2). The holes, comprising substantially the structural limitations as instantly recited, would inherently define a desired pressure loss and ensure uniform flow over the tube packets.

12. Claims 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laquement et al. (U.S. 4,811,696) in view of Vancamp et al. (U.S. 3,679,373), as applied to claim 9 above, and further in view of Nickerson et al. (U.S. 4,117,885).

With respect to claims 11 and 14, Laquement et al. (FIG. 2) are silent as to whether the distribution **62** or collecting chamber **64** may be mounted externally on wall **10**, or whether the chamber **62**, **64** may comprise a semicircular cross section. However, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to mount the chambers externally on the reactor wall and to select a semicircular cross-section for the chamber of the modified apparatus of Laquement et al. on the basis of suitability for the intended use and absent showing any unexpected results, since shifting location of parts was held to have been obvious. *In re Japikse,* 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950) and changes in shape involves only ordinary skill in the art. *In re Dailey* 149 USPQ 47, 50 (CCPA 1966); *Glue Co. v Upton* 97 US 3, 24 (USSC 1878). Furthermore, the same comments with respect to Nickerson et al. apply (see claims 3, 6).

13. Claims 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (U.S. 3,833,051) in view of Vancamp et al. (U.S. 3,679,373), as applied to claim 9 above, and further in view of Nickerson et al. (U.S. 4,117,885).

With respect to claims 11 and 14, Frank (FIG. 1, 2) is silent as to whether the distribution **2** or collecting **3** chamber may be mounted externally on wall **1**, and whether the chambers may comprise an essentially semicircular shape. However, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to mount the chambers externally on the reactor wall and select semicircular chambers for the apparatus of

Frank, on the basis of suitability for the intended use and absent showing any unexpected results, since shifting location of parts was held to have been obvious. *In re Japikse,* 181 F.2d 1019, 1023, 86 USPQ 70, 73 (CCPA 1950) and changes in shape involves only ordinary skill in the art. *In re Dailey* 149 USPQ 47, 50 (CCPA 1966); *Glue Co. v Upton* 97 US 3, 24 (USSC 1878). Furthermore, the same comments with respect to Nickerson et al. apply (see claims 3, 6).

14. Claims 12-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laquement et al. (U.S. 4,811,696) in view of Vancamp et al. (U.S. 3,679,373), as applied to claim 9 above, and further in view of Pettibone (U.S. 1,848,801).

With respect to claim 12, Laquement et al. (FIG. 2) are silent as to whether the distribution **62** or collecting **64** chamber may be mounted both internally and externally on the reactor wall **10**. The same comments with respect to Pettibone apply (see claim 4 above).

With respect to claim 13, Laquement et al. (FIG. 2) are silent as to whether the chamber **62**, **64** may comprise a substantially rectangular cross-section. In any event, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select a substantially rectangular cross-section for the distribution or collecting chamber in the apparatus of Laquement et al., on the basis of suitability for the intended use and absent showing any unexpected results, since it has been held that changes in shape involves only ordinary skill in the art. *In re Dailey* 149 USPQ 47, 50 (CCPA 1966); *Glue Co. v Upton* 97 US 3, 24 (USSC 1878). Furthermore, the same comments with respect to Pettibone apply (see claim 5 above).

With respect to claim 15, Laquement et al. (FIG. 2) further disclose the distribution or collecting chamber **62**, **64** is essentially circular in cross-section, but are silent as to whether one half of the circular shape may be coordinated with the interior of the reactor an the other half

with the exterior of the reactor. The same comments with respect to Pettibone apply (see claim 4 above; "mounting both internally and externally").

15. Claims 12-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (U.S. 3,833,051) in view of Vancamp et al. (U.S. 3,679,373), as applied to claim 9 above, and further in view of Pettibone (U.S. 1,848,801).

With respect to claim 12, Frank (FIG. 1, 2) is silent as to whether the distribution **2** or collecting **3** chamber may be mounted both internally and externally on the reactor wall **1**. The same comments with respect to Pettibone apply (see claim 4 above).

With respect to claim 13, Frank (FIG. 1, 2) is silent as to whether chamber **2**, **3** may comprise a substantially rectangular cross-section. In any event, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select a substantially rectangular cross-section for the chamber in the apparatus of Frank, on the basis of suitability for the intended use and absent showing any unexpected results, since it has been held that changes in shape involves only ordinary skill in the art. *In re Dailey* 149 USPQ 47, 50 (CCPA 1966); *Glue Co. v Upton* 97 US 3, 24 (USSC 1878). Furthermore, the same comments with respect to Pettibone apply (see claim 5 above).

With respect to claim 15, Frank discloses by illustration (FIG. 1, 2) an essentially circular cross-section for the distribution and collecting chambers, but is silent as to whether one half of the circular shape may be coordinated with the interior of the reactor an the other half with the exterior of the reactor. The same comments with respect to Pettibone apply (see claim 4 above; " mounting both internally and externally").

Response to Arguments

16. Applicant's arguments with respect to claims 9-16 have been considered but are moot in view of the new ground(s) of rejection.

17. Applicant's arguments filed on November 27, 2002, with respect to claims 1-8, have been fully considered but they are not persuasive.

Applicants argue that, "Frank or Nickerson, even combined, do not disclose, teach or otherwise suggest the COMBINATION of a fluidized-bed reactor for oxychlorination of ethylene, oxygen and HCl which includes a heat exchanger with tube packets in a fluidized bed for releasing heat from an exothermic reaction to a heat-transfer medium in the tube packets and a ring pipe mounted as a distribution or collection chamber on the reactor wall so that the tube packets come into contact with the water distributed via the ring pipe and the steam removed via the ring pipe." (page 8, last paragraph to page 9, first paragraph).

However, using the apparatus of Frank (or the modified apparatus of Frank) to practice the process of oxychlorination merely constitutes intended use, which holds no patentable weight in apparatus claims. Likewise, in the recitation of a heat transfer medium comprising "water/steam", the heat transfer medium is only a matter of intended use. Please note that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Furthermore, a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a

structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

In addition, applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Instead, applicants have merely restated claim 1 as their argument. As indicated above, the reference of Frank (as well as the modified apparatus of Frank) comprises substantially the structural limitations recited, and therefore the apparatus structurally meets the claims.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Bortolini et al., Dreuilhe et al., Tanaka et al. and Rogers, Jr are provided to illustrate the state of the art of heat exchangers for fluidized bed apparatus.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is 703-305-4951. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jennifer A. Leung JAL
February 19, 2003

Hien Tran

HIEN TRAN
PRIMARY EXAMINER